

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No. : 10/753,866
Applicant : Juha Virtanen
Filed : January 8, 2004
Title : Shield Arrangement for ECG Lead Wires

TC/A.U. : 3762
Examiner : Michael William Kahelin

Docket No. : 2534-00076
Customer No. : 26753
Confirmation No. : 6124

FINAL DECLARATION

Commissioner for Patents
Mail Stop - Issue Fee
Post Allowance Communication
c/o Technology Center
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

JUHA VIRTANEN declares and says that he is the inventor named in the above-described application;

THAT he has read the 9 claims allowed in the above-identified application; and

THAT the subject matter of said claims was part of his original invention.

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 6.8.2007

Inventor 

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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-18 (previously canceled)

Claim 19 (Cancelled)

Claim 20 (Currently Amended): The grounding circuitry of claim ~~28~~19 wherein said grounding circuit means comprises an operational amplifier interposed between said first and second terminals.

Claim 21 (Currently Amended): The grounding circuitry of claim ~~28~~19 wherein said grounding circuit means includes means for sensing an operating condition of the grounding circuit means when said grounding circuit means is in said second state ~~creating the high-impedance path for~~
5 determining that an electrode of the second set is connected to the patient.

Claim 22 (Previously Presented): The grounding circuitry of claim 21 wherein said sensing means comprises voltage comparison means.

Claim 23 (Currently Amended): The grounding circuitry of claim 21 wherein said sensing means causes said switching means to switch from said second ~~condition-state~~ condition-state when it is determined that an electrode of the second set is connected to the
5 patient.

Claim 24 (Currently Amended): The grounding circuitry of claim ~~28~~19 wherein said grounding circuitry is ~~further described as~~ suitable for use with a first set of ECG signal acquisition conductors having shields and wherein said switch means ~~is further defined as suitable for~~
~~connecting~~ connects the shields of the first set of ECG signal acquisition conductors ~~to the~~
5 ~~relative ground in the absence of a connection to the ECG signal conductors of the second set of~~

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conductors to said second terminal of said grounding circuit when said switch means is in said second condition for holding the shields at the potential of the ground.

Claim 25 (Currently Amended): The grounding circuitry of claim 28-19 wherein said switch means is connected to a collection connector suitable for connection to the conductors of said first and second sets.

Claim 26 (Currently Amended): The grounding circuitry of claim 24 wherein said switch means is connected to a collection connector having ~~connector connection~~ suitable for connection to the conductors of said first set and connectors suitable for connection to either to the shields of the conductors of said first set or to the conductors of said second set.

Claim 27 (Currently Amended): The grounding circuitry of claim 28-19 further defined as suitable for use with a first set of ECG signal conductors suitable for carrying out 5-lead ECG signal acquisition and a second set of ECG signal conductors suitable for carrying out 12-lead
5 ECG signal acquisition.

Claim 28 (New) Grounding circuitry suitable for use with ECG signal acquisition conductors providing ECG signals acquired from a patient to an electrocardiograph, said conductors including at least a first set of ECG signal conductors for connection to the patient and suitable
5 for carrying out ECG signal acquisition from the patient of a given number of leads, said grounding circuitry also being suitable for use with a second set of ECG signal conductors for connection to the patient, said second set of conductors being suitable for carrying out, with said first set of conductors, ECG signal acquisition from the patient of a greater number of leads than said given number of leads, said circuitry comprising:

10 switch means, said switch means being suitable for connection to the ECG signal conductors of the second set of conductors, when present, and having a first condition that connects the conductors of the second set to an output for providing ECG signal acquisition of

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said greater number of leads to the electrocardiograph, said switch means having a second condition; and

15 a grounding circuit having a first terminal connectable to ground and a second terminal, said grounding circuit comprising means for creating low impedance path between said first and second terminals when in a first state and for creating a high impedance path between said first and second terminals when in a second state;

said switch means, when in the second condition, disconnecting conductors of the
20 second set from said output and connecting the conductors of the second set to said second terminal of said grounding circuit,

said grounding circuit means being responsive to the presence of current in the second set of conductors when said second set of conductors is connected to said second terminal for assuming said first, low impedance path state when the current at said second
25 terminal is below a predefined limit for holding the conductors of the second set at the potential of the ground, said grounding circuit means assuming said second, high impedance path state when the current at said second terminal is in excess of the predefined limit for limiting the amount of current to which the patient is exposed if a conductor of said second set is connected to the patient.